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Ai sensi dell'art. 2 comma 3 del D.M. 275 del 30/10/2002

Si dichiara che questo prodotto è conforme alle normative vigenti e soddisfa i requisiti essenziali richiesti dalle direttive

2004/108/CE, 2006/95/CE e 1999/05/CE

quando ad esso applicabili

Short Declaration of conformity

We declare this product is complying with the laws in force and meeting all the essential requirements as specified by the directives

2004/108/CE, 2006/95/CE and 1999/05/CE

whenever these laws may be applied

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CHAPTER 1: INTRODUCTION

1.1 Before You Start

Thank you for choosing our product. Before you start installing the motherboard, please make sure you follow the instructions below:

- Prepare a dry and stable working environment with sufficient lighting.
- Always disconnect the computer from power outlet before operation.
- Before you take the motherboard out from anti-static bag, ground yourself properly by touching any safely grounded appliance, or use grounded wrist strap to remove the static charge.
- Avoid touching the components on motherboard or the rear side of the board unless necessary. Hold the board on the edge, do not try to bend or flex the board.
- Do not leave any unfastened small parts inside the case after installation. Loose parts will cause short circuits which may damage the equipment.
- Keep the computer from dangerous area, such as heat source, humid air and water.
- The operating temperatures of the computer should be 0 to 45 degrees Celsius.
- To avoid injury, be careful of:
  Sharp pins on headers and connectors
  Rough edges and sharp corners on the chassis
  Damage to wires that could cause a short circuit

1.2 Package Checklist

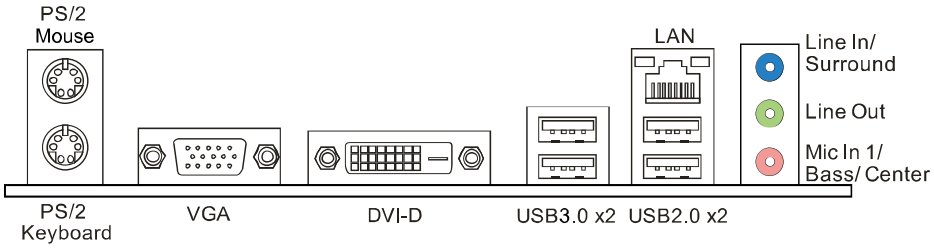
- ☑ Serial ATA Cable x2
- ☑ Rear I/O Panel for ATX Case x1
- ☑ Installation Guide x1
- ☑ Fully Setup Driver DVD x1

Note: The package contents may be different due to the sales region or models in which it was sold. For more information about the standard package in your region, please contact your dealer or sales representative.

1.3 Motherboard Specifications

Specifications	
CPU Support	Socket FM2+/FM2 for AMD A-series processor Maximum CPU TDP (Thermal Design Power): 100Watt * Please refer to www.biostar.com.tw for CPU support list.
Chipset	A75MD+: AMD A75 FCH A78MD: AMD A78 FCH
Memory	Supports Dual Channel DDR3 800/ 1066/ 1333/ 1600/ 1866/ 2133/ 2400(OC)/ 2600(OC) 2 x DDR3 DIMM Memory Slot, Max. Supports up to 32 GB Memory Each DIMM supports non-ECC 512MB/ 1/ 2/ 4/ 8/ 16 GB DDR3 module * Please refer to www.biostar.com.tw for Memory support list.
Storage	4x SATA 6Gb/s Connector Supports RAID 0,1,10 & AHCI
LAN	Realtek RTL 8111G 10/ 100/ 1000 Mb/s auto negotiation, Half / Full duplex capability
Audio Codec	ALC662 5.1 Channels, High Definition Audio
USB	6x USB 2.0 port (2 on rear I/Os and 4 via internal headers) 4x USB 3.0 port (2 on rear I/Os and 2 via internal headers)
Expansion Slots	1x PCIe x1 Slot 1x PCIe 3.0 x16 Slot (Only FM2+ processors can support PCIe 3.0)
Rear I/Os	1x PS/2 Mouse 1x PS/2 Keyboard 1x VGA Port 1x DVI Port 1x LAN port 2x USB 2.0 Port 2x USB 3.0 Port 3x Audio Jack
Internal I/Os	4x SATA 6.0Gb/s Connector 2x USB 2.0 Header (each header supports 2 USB 2.0 ports) 1x USB 3.0 Header (each header supports 2 USB 3.0 ports) 1x 4-Pin Power Connector 1x 24-Pin Power Connector 1x CPU Fan Connector 1x System Fan Connector 1x Front Panel Header 1x Front Audio Header 1x Clear CMOS Header 1x Serial Port Header
Form Factor	microATX Form Factor, 226 mm x 174 mm
OS Support	Windows XP / 7 / 8 / 8.1 Biostar reserves the right to add or remove support for any OS with or without notice.

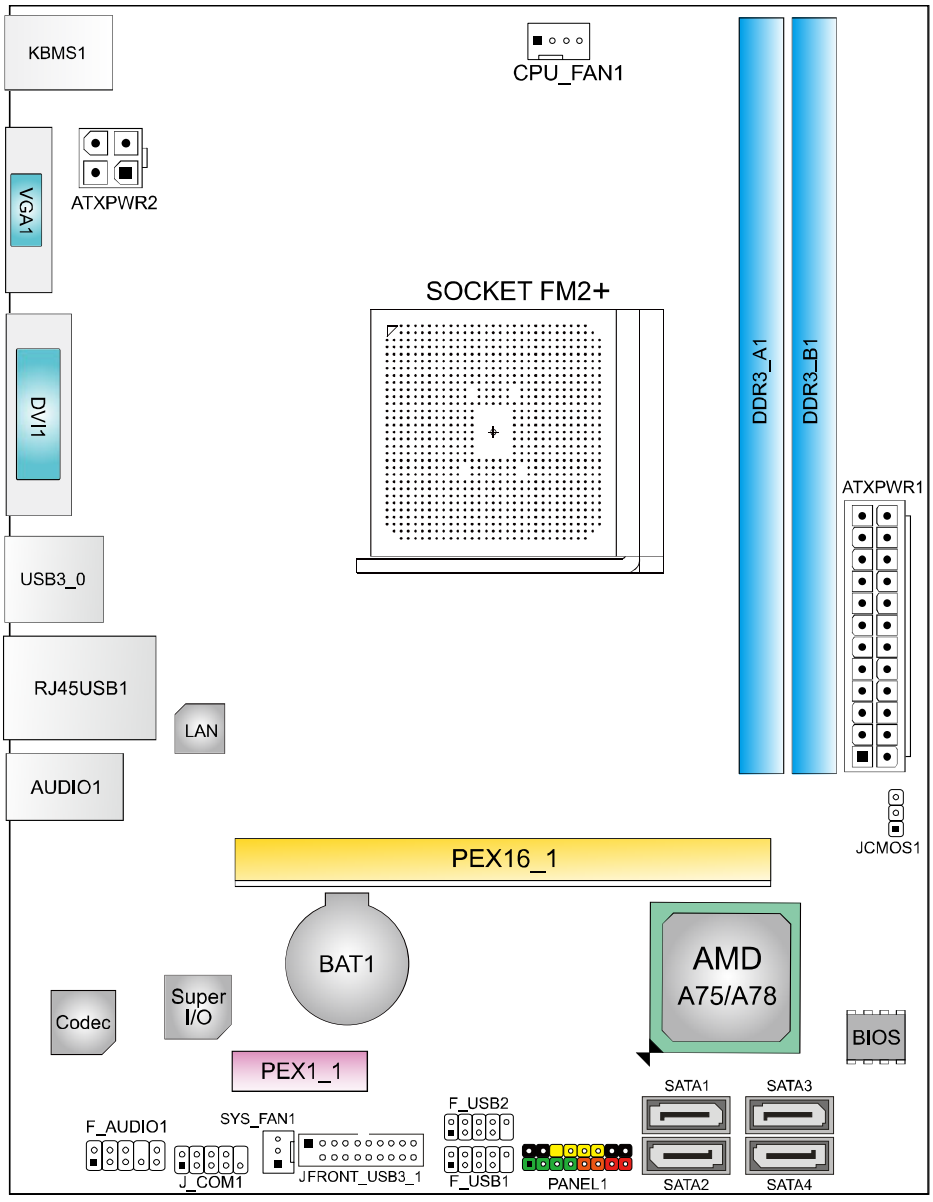
1.4 Rear Panel Connectors



Note 1: DVI-D / VGA Output require an AMD family processor with intedrated graphics.
Note 2: The mainboard supports two independent display outputs.
Note 3: Since the audio chip supports High Definition Audio Specification, the function of each audio jack can be defined by software. The input / output function of each audio jack listed above represents the default setting. However, when connecting external microphone to the audio port, please use the Line In (Blue) and Mic In (Pink) audio jack.
Note 4: Maximum resolution:

Outputs	Maximum resolution	Bit Depth
DVI-D	1920 x 1200 @60Hz	30 bpp
	2560 x 1600 @60Hz	24 bpp
VGA	1920 x 1600 @60Hz	--

1.5 Motherboard Layout

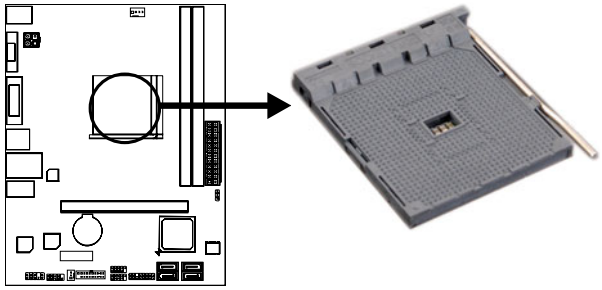


Note: ■ represents the 1st pin.

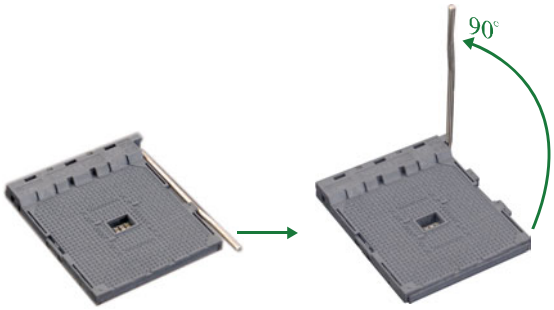
CHAPTER 2: HARDWARE INSTALLATION

2.1 Install Central Processing Unit (CPU)

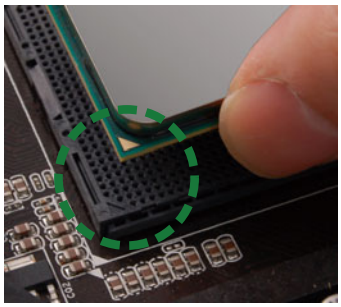
Step 1: Locate the CPU socket on the motherboard



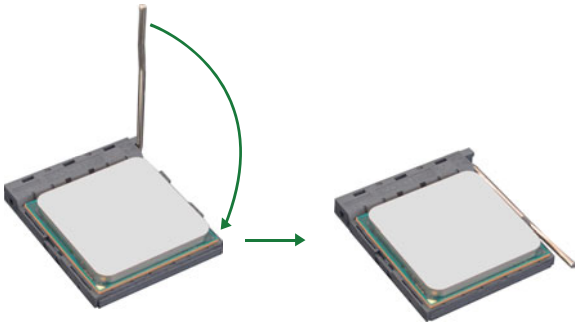
Step 2: Pull the socket locking out from the socket and then raise the lever up to a 90-degree angel.



Step 3: Look for the white triangle on socket, and the gold triangle on CPU should point towards this white triangle. The CPU will fit only in the correct orientation.

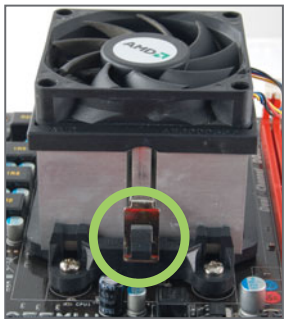


Step 4: Hold the CPU down firmly, and then close the lever to locked the position

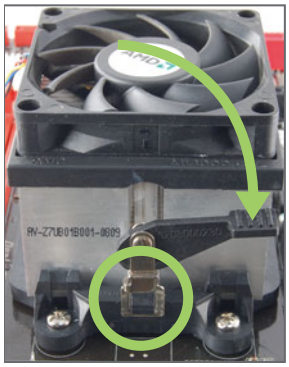


2.2 Install a Heatsink

Step 1: Place the heatsink and fan assembly onto the retention frame. Match the heatsink clip with the socket mounting-lug. Hook the spring clip to the mounting-lug.



Step 2: On the other side, push the retention clip straight down to lock into the plastic lug on the retention frame, and then press down the locker until it stops.

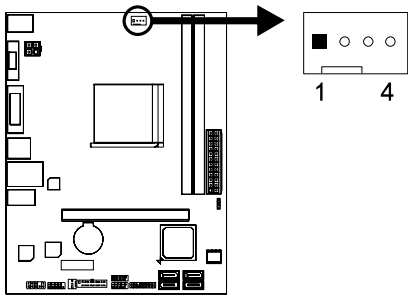


Note1: Do not forget to connect the CPU fan connector.
Note2: For proper installation, please kindly refer to the installation manual of your CPU heatsink.

2.3 Connect Cooling Fans

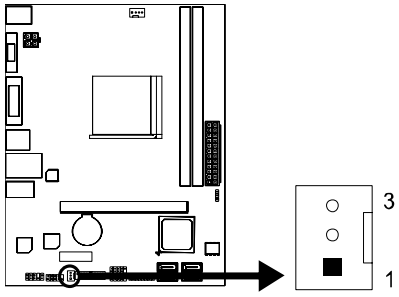
These fan headers support cooling-fans built in the computer. The fan cable and connector may be different according to the fan manufacturer. Connect the fan cable to the connector while matching the black wire to pin#1.

CPU_FAN1: CPU Fan Header



Pin	Assignment
1	Ground
2	+12V
3	FAN RPM rate sense
4	Smart Fan Control(By Fan)

SYS_FAN1: System Fan Header

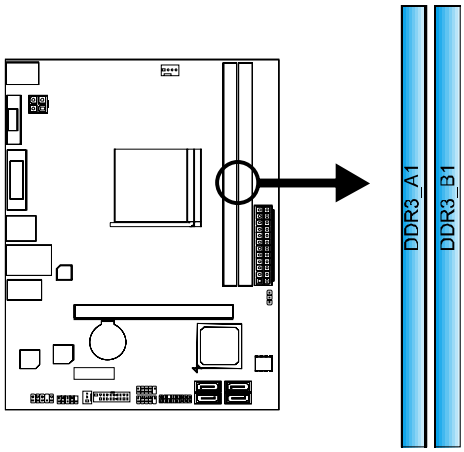


Pin	Assignment
1	Ground
2	+12V
3	FAN RPM rate sense

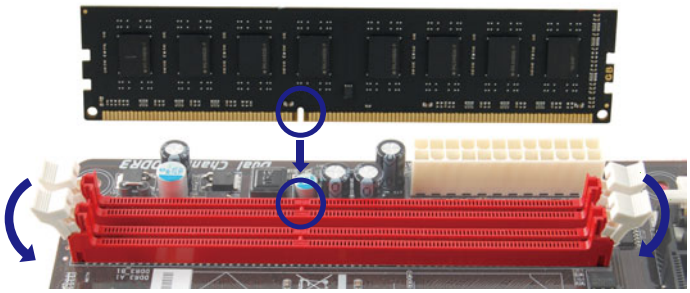
Note: CPU_FAN1, SYS_FAN1 support 4-pin and 3-pin head connectors. When connecting with wires onto connectors, please note that the red wire is the positive and should be connected to pin#2, and the black wire is Ground and should be connected to GND.

2.4 Install System Memory

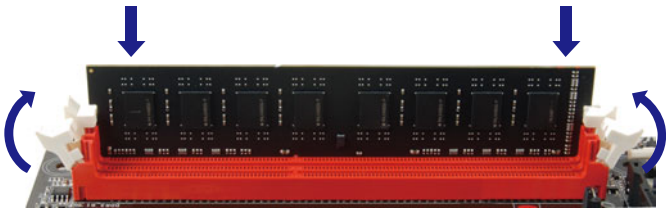
A. DDR3 Modules



Step 1: Unlock a DIMM slot by pressing the retaining clips outward. Align a DIMM on the slot such that the notch on the DIMM matches the break on the slot.



Step 2: Insert the DIMM vertically and firmly into the slot until the retaining clips snap back in place and the DIMM is properly seated.



Note: If the DIMM does not go in smoothly, do not force it. Pull it all the way out and try again.

B. Memory Capacity

DIMM Socket Location	DDR3 Module	Total Memory Size
DDR3_A1	512MB/1GB/2GB/4GB/8GB/16GB	Max is 32GB.
DDR3_B1	512MB/1GB/2GB/4GB/8GB/16GB	

C. Dual Channel Memory Installation

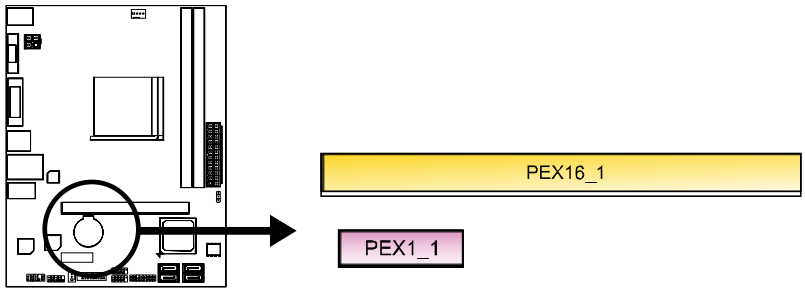
Please refer to the following requirements to activate Dual Channel function:
Install memory module of the same density in pairs, shown in the table.

Dual Channel Status	DDR3_A1	DDR3_B1
Disabled	O	X
Disabled	X	O
Enabled	O	O

(O means memory installed, X means memory not installed.)

Note: The DRAM bus width of the memory module must be the same (x8 or x16)

2.5 Expansion Slots



PEX16_1: PCI-Express Gen3 x16 Slot

- PCI-Express 3.0 compliant.
- Maximum theoretical realized bandwidth of 16GB/s simultaneously per direction, for an aggregate of 32GB/s totally.
- Only FM2+ processors can support PCIe 3.0.

PEX1_1: PCI-Express Gen2 x1 Slot

- PCI-Express 2.0 compliant.
- Data transfer bandwidth up to 500MB/s per direction; 1GB/s in total

Install an Expansion Card

You can install your expansion card by following steps:

1. Read the related expansion card's instruction document before install the expansion card into the computer.
2. Remove your computer's chassis cover, screws and slot bracket from the computer.
3. Place a card in the expansion slot and press down on the card until it is completely seated in the slot.
4. Secure the card’s metal bracket to the chassis back panel with a screw.
5. Replace your computer's chassis cover.
6. Power on the computer, if necessary, change BIOS settings for the expansion card.
7. Install related driver for the expansion card.

2.6 Jumper Setting

The illustration shows how to set up jumpers. When the jumper cap is placed on pins, the jumper is “close”, if not, that means the jumper is “open”.

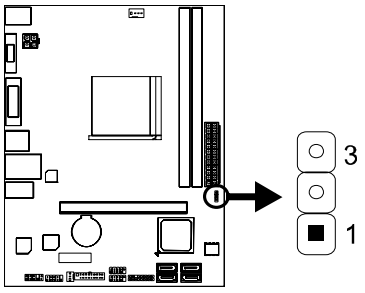
Pin opened

Pin closed

Pin1-2 closed

JCMOS1: Clear CMOS Header

Placing the jumper on pin2-3, it allows user to restore the BIOS safe setting and the CMOS data. Please carefully follow the procedures to avoid damaging the motherboard.



Pin 1-2 Close:
Normal Operation (default).

Pin 2-3 Close:
Clear CMOS data.

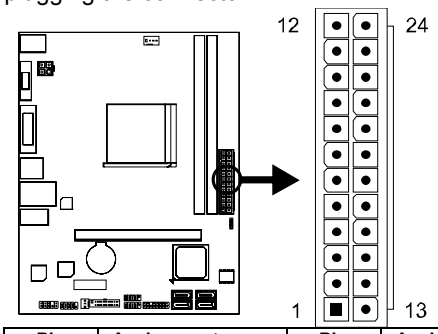
※ Clear CMOS Procedures:

1. Remove AC power line.
2. Set the jumper to “Pin 2-3 close”.
3. Wait for five seconds.
4. Set the jumper to “Pin 1-2 close”.
5. Power on the AC.
6. Load Optimal Defaults and save settings in CMOS.

2.7 Headers & Connectors

ATXPWR1: ATX Power Source Connector

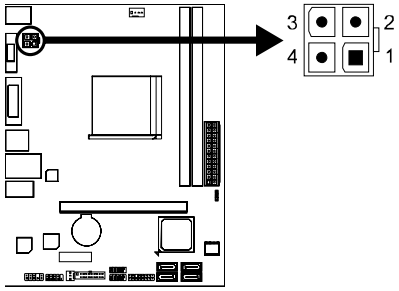
For better compatibility, we recommend to use a standard ATX 24-pin power supply for this connector. Make sure to find the correct orientation before plugging the connector.



Pin	Assignment	Pin	Assignment
13	+3.3V	1	+3.3V
14	-12V	2	+3.3V
15	Ground	3	Ground
16	PS_ON	4	+5V
17	Ground	5	Ground
18	Ground	6	+5V
19	Ground	7	Ground
20	NC	8	PW_OK
21	+5V	9	Standby Voltage+5V
22	+5V	10	+12V
23	+5V	11	+12V
24	Ground	12	+3.3V

ATXPWR2: ATX Power Source Connector

This connector will provide +12V to CPU power circuit.

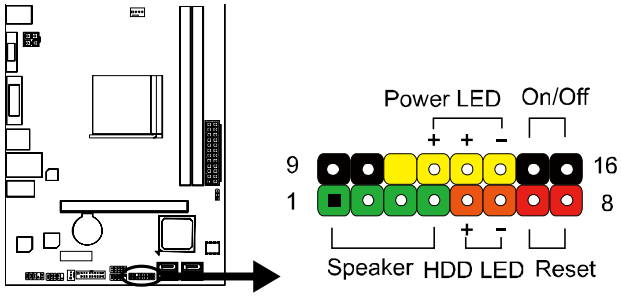


Pin	Assignment
1	+12V
2	+12V
3	Ground
4	Ground

Note1: Before you power on the system, please make sure that both ATXPWR1 and ATXPWR2 connectors have been plugged-in.
Note2: Insufficient power supplied to the system may result in instability or the peripherals not functioning properly. Use of a PSU with a higher power output is recommended when configuring a system with more power-consuming devices.

JPANEL1: Front Panel Header

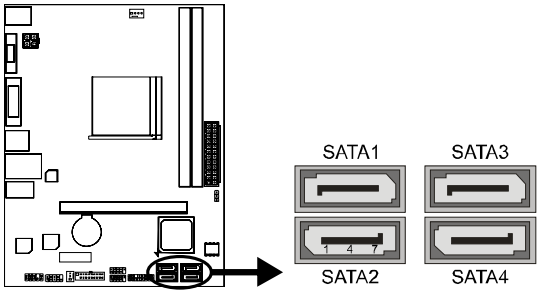
This 16-pin header includes Power-on, Reset, HDD LED, Power LED, and speaker connection. It allows user to connect the PC case's front panel switch functions.



Pin	Assignment	Function	Pin	Assignment	Function
1	+5V	Speaker Connector	9	N/A	N/A
2	N/A		10	N/A	
3	N/A		11	N/A	N/A
4	Speaker		12	Power LED (+)	Power LED
5	HDD LED (+)	Hard drive LED	13	Power LED (+)	
6	HDD LED (-)		14	Power LED (-)	
7	Ground	Reset button	15	Power button	Power-on button
8	Reset control		16	Ground	

SATA1~SATA4: Serial ATA 6.0 Gb/s Connectors

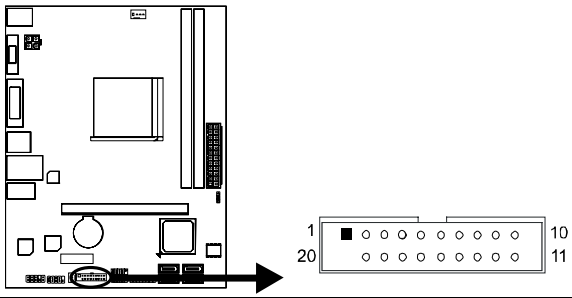
These connectors connect to SATA hard disk drives via SATA cables.



Pin	Assignment
1	Ground
2	TX+
3	TX-
4	Ground
5	RX-
6	RX+
7	Ground

JFRONT_USB3_1: Header for USB 3.0 Ports at Front Panel

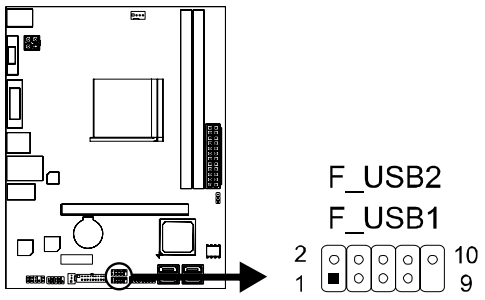
This header allows user to add additional USB ports on the PC front panel, and also can be connected with a wide range of external peripherals.



Pin	Assignment	Pin	Assignment
1	VBUS0	11	D2+
2	SSRX1-	12	D2-
3	SSRX1+	13	Ground
4	Ground	14	SSTX2+
5	SSTX1-	15	SSTX2-
6	SSTX1+	16	Ground
7	Ground	17	SSRX2+
8	D1-	18	SSRX2-
9	D1+	19	VBUS1
10	ID	20	Key

F_USB1/F_USB2: Headers for USB 2.0 Ports at Front Panel

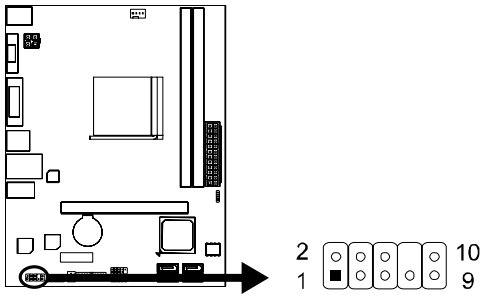
This header allows user to connect additional USB cable on the PC front panel, and also can be connected with a wide range of simultaneously accessible external Plug and Play peripherals.



Pin	Assignment
1	+5V (fused)
2	+5V (fused)
3	USB-
4	USB-
5	USB+
6	USB+
7	Ground
8	Ground
9	NC
10	Key

F_AUDIO1: Front Panel Audio Header

This header allows user to connect the front audio output cable with the PC front panel. This header supports HD and AC'97 audio front panel connector.

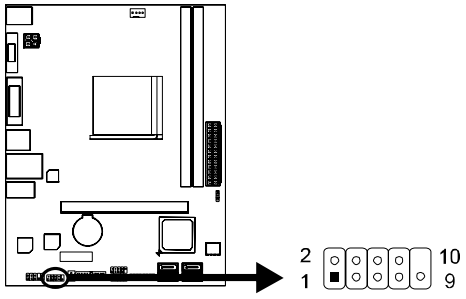


HD Audio		AC'97	
Pin	**Assignment**	**Pin**	**Assignment**
1	Mic Left in	1	Mic In
2	Ground	2	Ground
3	Mic Right in	3	Mic Power
4	GPIO	4	Audio Power
5	Right line in	5	RT Line Out
6	Jack Sense	6	RT Line Out
7	Front Sense	7	Reserved
8	Key	8	Key
9	Left line in	9	LFT Line Out
10	Jack Sense	10	LFT Line Out

Note1: It is recommended that you connect a high-definition front panel audio module to this connector to avail of the motherboard's high definition audio capability.
Note2: Please try to disable the "Front Panel Jack Detection" if you want to use an AC'97 front audio output cable. The function can be found via O.S. Audio Utility.

J_COM1: Serial Port Connector

The motherboard has a Serial Port Connector for connecting RS-232 Port.



Pin	Assignment
1	Carrier detect
2	Received data
3	Transmitted data
4	Data terminal ready
5	Signal ground
6	Data set ready
7	Request to send
8	Clear to send
9	Ring indicator
10	NC

CHAPTER 3: UEFI BIOS & SOFTWARE

3.1 UEFI BIOS Setup

- For better system performance, the UEFI BIOS firmware is being continuously updated. The UEFI BIOS information described below in this manual is for your reference only and the actual UEFI BIOS information and settings on board may be different from this manual
- For further information of setting up the UEFI BIOS, please refer to the UEFI BIOS Manual in the Setup DVD.

3.2 BIOS Update

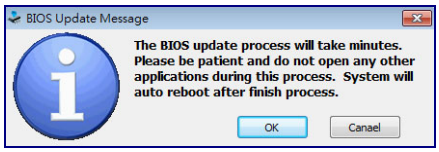
There are three ways to update the BIOS:
BIOS Update Utility, BIOS Online Update Utility and BIOS Flasher.

1. BIOS Update Utility

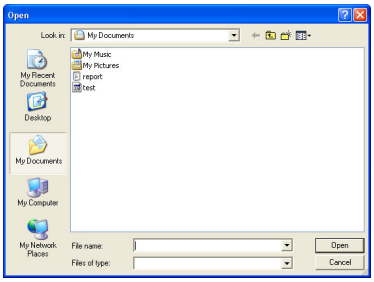
1. Installing BIOS Update Utility from the DVD Driver.
2. Download the proper BIOS from www.biostar.com.tw .

3. Open BIOS Update Utility and click the **Update BIOS** button on the main screen.

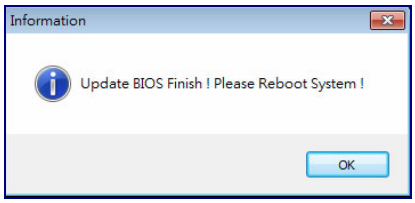
4. A warning message will show up to request your agreement to start the BIOS update. Click **OK** to start the update procedure.


BIOS Update Message
The BIOS update process will take minutes. Please be patient and do not open any other applications during this process. System will auto reboot after finish process.
OK
Canael

5. Choose the location for your BIOS file in the system. Please select the proper BIOS file, and then click on **Open**. It will take several minutes, please be patient.



6. After the BIOS Update process is finished, click on **OK** to reboot the system.

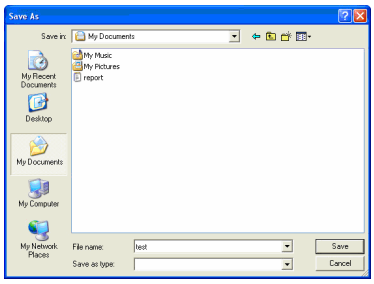


7. While the system boots up and the full screen logo shows up, please press the Del <Delete> key to enter BIOS setup.

After entering the BIOS setup, please go to the **Save & Exit**, using the **Restore Defaults** function to load Optimized Defaults, and select **Save Changes and Reset** to restart the computer. Then, the BIOS Update is completed.

Backup BIOS

Click the Backup BIOS button on the main screen for the backup of BIOS, and select a proper location for your backup BIOS file in the system, and click **Save**.

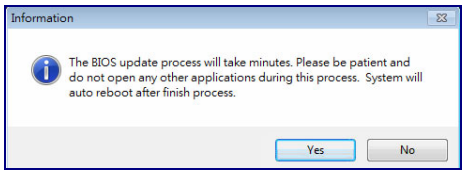


2. Online Update Utility

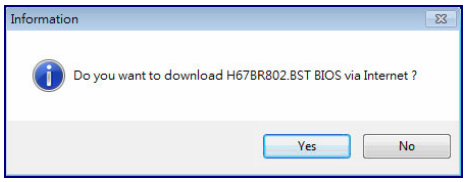
1. Installing BIOS Update Utility from the DVD Driver.
2. Please make sure the system is connected to the internet before using this function.

3. Open BIOS Update Utility and click the **Online Update** button on the main screen.

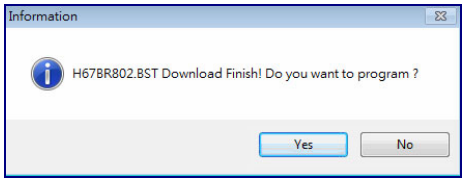
4. An open dialog will show up to request your agreement to start the BIOS update. Click **Yes** to start the online update procedure.


Information
The BIOS update process will take minutes. Please be patient and do not open any other applications during this process. System will auto reboot after finish process.
Yes
No

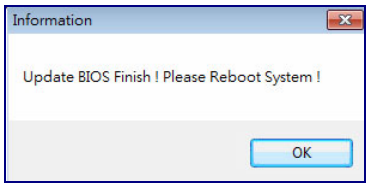
5. If there is a new BIOS version, the utility will ask you to download it. Click **Yes** to proceed.



6. After the download is completed, you will be asked to program (update) the BIOS or not. Click **Yes** to proceed.



7. After the updating process is finished, you will be asked you to reboot the system. Click **OK** to reboot.



8. While the system boots up and the full screen logo shows up, press

<Delete> key to enter BIOS setup.

After entering the BIOS setup, please go to the **Save & Exit**, using the **Restore Defaults** function to load Optimized Defaults, and select **Save Changes and Reset** to restart the computer. Then, the BIOS Update is completed.

3. BIOSTAR BIOS Flasher

BIOSTAR BIOS Flasher is a BIOS flashing utility providing you an easy and simple way to update your BIOS via USB pen drive.

Note1: This utility only allows storage device with FAT32/16 format and single partition.

Note2: Shutting down or resetting the system while updating the BIOS will lead to system boot failure.

The BIOSTAR BIOS Flasher is built in the BIOS ROM. To enter the utility, **press <F12> during the Power-On Self Tests (POST)** procedure while booting up.

Updating BIOS with BIOSTAR BIOS Flasher

1. Go to the website to download the latest BIOS file for the motherboard.

2. Then, copy and save the BIOS file into a USB flash (pen) drive.

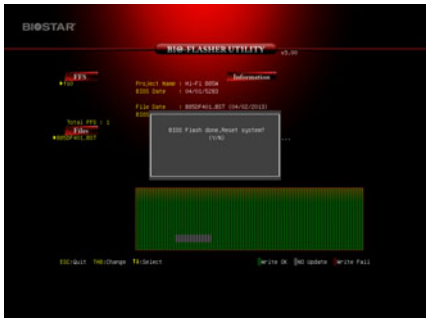
3. Insert the USB pen drive that contains the BIOS file to the USB port.

4. Power on or reset the computer and then press **<F12>** during the **POST** process.

5. After entering the POST screen, the BIOS-FLASHER utility pops out. Choose [fs0] to search for the BIOS file.

6. Select the proper BIOS file, and a message asking if you are sure to flash the BIOS file. Click Yes to start updating BIOS.

7. A dialog pops out after BIOS flash is completed, asking you to restart the system. Press the [Y] key to restart system.



8. While the system boots up and the full screen logo shows up, press

<Delete> key to enter BIOS setup.

After entering the BIOS setup, please go to the **Save & Exit**, using the **Restore Defaults** function to load Optimized Defaults, and select **Save Changes and Reset** to restart the computer. Then, the BIOS Update is completed.

3.3 Software

Installing Software

1. Insert the Setup DVD to the optical drive. The driver installation program would appear if the Autorun function has been enabled.
2. Select **Software Installation**, and then click on the respective software title.
3. Follow the on-screen instructions to complete the installation.

Note1: All the information and content about following software are subject to be changed without notice. For better performance, the software is being continuously updated.

Note2: The information and pictures described below are for your reference only. The actual information and settings on board may be slightly different from this manual.

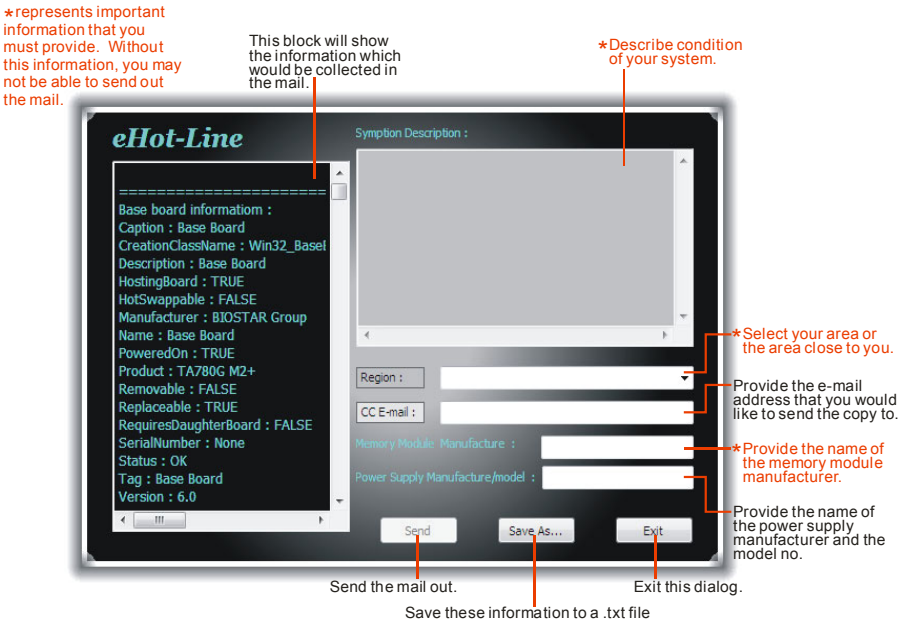
Launching Software

After the installation process is completed, you will see the software icon showing on the desktop. Double-click the icon to launch it.

eHot-Line

eHot-Line is a convenient utility that helps you to contact with our Tech-Support system. This utility will collect the system information which is useful for analyzing the problem you may have encountered, and then send these information to our tech-support department to help you fix the problem.

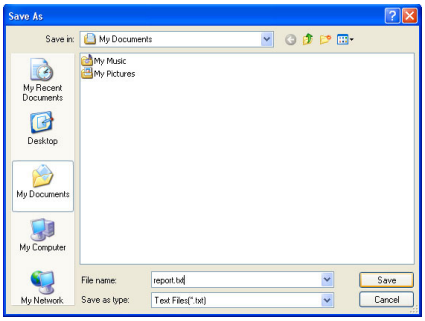
Note: Before you use this utility, please set Outlook Express as your default e-mail client application program.


*represents important information that you must provide. Without this information, you may not be able to send out the mail.
This block will show the information which would be collected in the mail.
*Describe condition of your system.
eHot-Line
Symption Description :
Base board information :
Caption : Base Board
CreationClassName : Win32_Baset
Description : Base Board
HostingBoard : TRUE
HotSwappable : FALSE
Manufacturer : BIOSTAR Group
Name : Base Board
PoweredOn : TRUE
Product : TA780G M2+
Removable : FALSE
Replaceable : TRUE
RequiresDaughterBoard : FALSE
SerialNumber : None
Status : OK
Tag : Base Board
Version : 6.0
Region :
CC E-mail :
Memory Module Manufacture :
Power Supply Manufacture/model :
Send
Save As...
Exit
*Select your area or the area close to you.
Provide the e-mail address that you would like to send the copy to.
*Provide the name of the memory module manufacturer.
Provide the name of the power supply manufacturer and the model no.
Send the mail out.
Save these information to a .txt file
Exit this dialog.

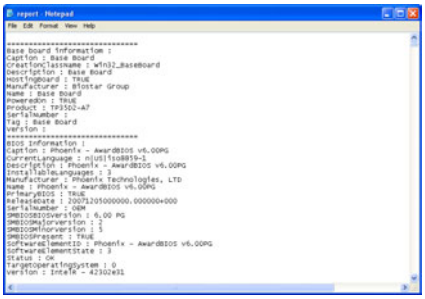
After filling up this information, click “**Send**” to send the mail out. A warning dialog would appear asking for your confirmation; click “**Send**” to confirm or “**Do Not Send**” to cancel.

If you want to save this information to a .txt file, click “**Save As…**” and then you will see a saving dialog appears asking you to enter file name.

Enter the file name and then click “**Save**”. Your system information will be saved to a .txt file.



Open the saved .txt file, you will see your system information including motherboard/BIOS/CPU/video/ device/OS information. This information is also concluded in the sent mail.

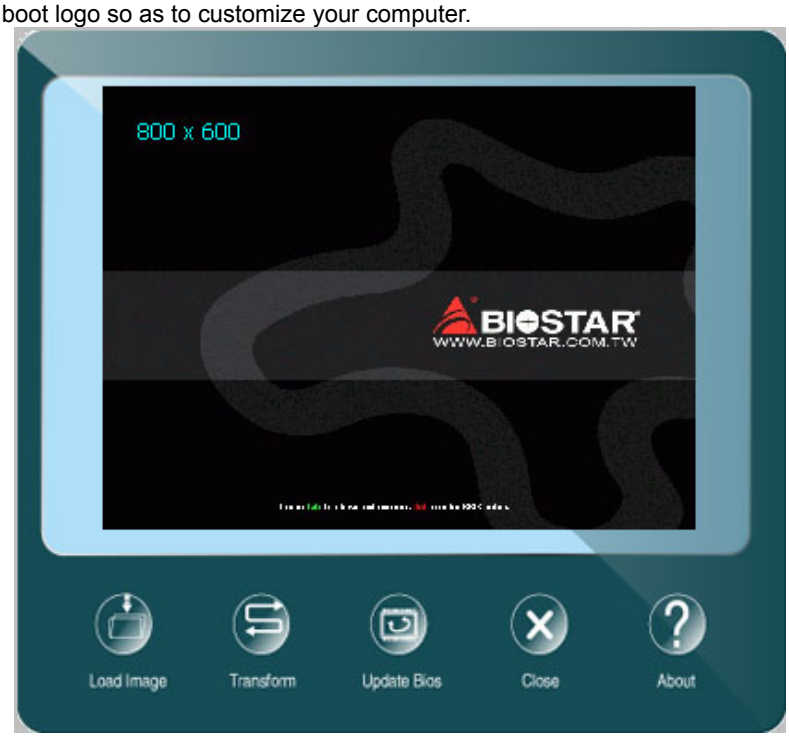


Note1: We will not share customer’s data with any other third parties, so please feel free to provide your system information while using eHot-Line service.

Note2: If you are not using Outlook Express as your default e-mail client application, you may need to save the system information to a .txt file and send the file to our tech support with other e-mail application. Go to the following web http://www.biostar.com.tw/app/en/about/contact.php for getting our contact information.

BIOScreen Utility

This utility allows you to personalize your boot logo easily. You can choose BMP as your boot logo so as to customize your computer.



Please follow the step-by-step instructions below to update boot logo:

- Load Image：Choose the picture as the boot logo.
- Transform：Transform the picture for BIOS and preview the result.
- Update Bios：Write the picture to BIOS Memory to complete the update

CHAPTER 4: USEFUL HELP

4.1 Driver Installation

After you installed your operating system, please insert the Fully Setup Driver DVD into your optical drive and install the driver for better system performance.

You will see the following window after you insert the DVD

The setup guide will auto detect your motherboard and operating system.

Note: If this window didn't show up after you insert the Driver DVD, please use file browser to locate and execute the file SETUP.EXE under your optical drive.

A. Driver Installation

To install the driver, please click on the Driver icon. The setup guide will list the compatible driver for your motherboard and operating system. Click on each device driver to launch the installation program.

B. Software Installation

To install the software, please click on the Software icon. The setup guide will list the software available for your system, click on each software title to launch the installation program.

C. Manual

Aside from the paperback manual, we also provide manual in the Driver DVD. Click on the Manual icon to browse for available manual.

Note: You will need Acrobat Reader to open the manual file. Please download the latest version of Acrobat Reader software from http://get.adobe.com/reader/

4.2 AMI BIOS Beep Code

Boot Block Beep Codes

Number of Beeps	Description
Continuing	Memory sizing error or Memory module not found

POST BIOS Beep Codes

Number of Beeps	Description
1	Success booting.
8	Display memory error (system video adapter)

4.3 Troubleshooting

Probable	Solution
1. There is no power in the system. Power LED does not shine; the fan of the power supply does not work 2. Indicator light on keyboard does not shine.	1. Make sure power cable is securely plugged in. 2. Replace cable. 3. Contact technical support.
System is inoperative. Keyboard lights are on, power indicator lights are lit, and hard drives are running.	Using even pressure on both ends of the DIMM, press down firmly until the module snaps into place.
System does not boot from a hard disk drive, but can be booted from optical drive.	1. Check cable running from disk to disk controller board. Make sure both ends are securely plugged in; check the drive type in the standard CMOS setup. 2. Backing up the hard drive is extremely important. All hard disks are capable of breaking down at any time.
System only boots from an optical drive. Hard disks can be read, applications can be used, but system fails to boot from a hard disk.	1. Back up data and applications files. 2. Reformat the hard drive. Re-install applications and data using backup disks.
Screen message shows “Invalid Configuration” or “CMOS Failure.”	Review system’s equipment. Make sure correct information is in setup.
System cannot boot after user installs a second hard drive.	1. Set master/slave jumpers correctly. 2. Run SETUP program and select correct drive types. Call the drive manufacturers for compatibility with other drives.

CPU Overheated

If the system shutdown automatically after power on system for seconds, that means the CPU protection function has been activated.

When the CPU is over heated, the motherboard will shutdown automatically to avoid a damage of the CPU, and the system may not power on again.

In this case, please double check:

1. The CPU cooler surface is placed evenly with the CPU surface.
2. CPU fan is rotated normally.
3. CPU fan speed is fulfilling with the CPU speed.

After confirmed, please follow steps below to relief the CPU protection function.

1. Remove the power cord from power supply for seconds.
2. Wait for seconds.
3. Plug in the power cord and boot up the system.

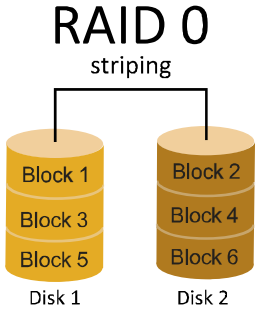
Or you can:

1. Clear the CMOS data.
   (See “Close CMOS Header: JCMOS1” section)
2. Wait for seconds.
3. Power on the system again.

4.4 RAID Functions

RAID Definitions

RAID 0:

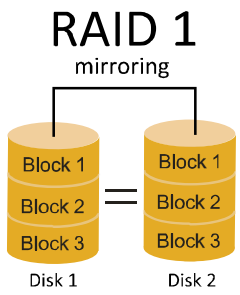


In a RAID 0 system data are split up in blocks that get written across all the drives in the array. By using multiple disks (at least 2) at the same time, this offers superior I/O performance. This performance can be enhanced further by using multiple controllers, ideally one controller per disk.

Features and Benefits

- **Drives:** Minimum 2, and maximum is up to 6 or 8. Depending on the platform.
- **Uses:** Intended for non-critical data requiring high data throughput, or any environment that does not require fault tolerance.
- **Benefits:** provides increased data throughput, especially for large files. No capacity loss penalty for parity.
- **Drawbacks:** Does not deliver any fault tolerance. If any drive in the array fails, all data is lost.
- **Fault Tolerance:** No.
- **Total Capacity:** (Minimal. HDD Capacity) x (Connected HDDs Amount)

RAID 1:

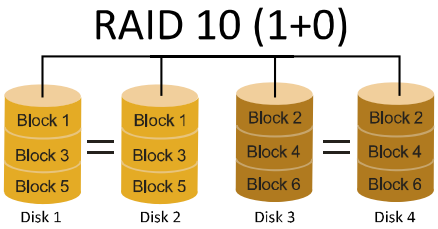


Data are stored twice by writing them to both the data disk (or set of data disks) and a mirror disk (or set of disks). If a disk fails, the controller uses either the data drive or the mirror drive for data recovery and continues operation. You need at least 2 disks for a RAID 1 array.

Features and Benefits

- **Drives:** Minimum 2, and maximum is 2.
- **Uses:** RAID 1 is ideal for small databases or any other application that requires fault tolerance and minimal capacity.
- **Benefits:** Provides 100% data redundancy. Should one drive fail, the controller switches to the other drive.
- **Drawbacks:** Requires 2 drives for the storage space of one drive. Performance is impaired during drive rebuilds.
- **Fault Tolerance:** Yes.

RAID 10:



RAID 10 combines the advantages (and disadvantages) of RAID 0 and RAID 1 in one single system. It provides security by mirroring all data on a secondary set of disks (disk 3 and 4 in the drawing below) while using striping across each set of disks to speed up data transfers.

Features and Benefits

- **Drives:** Minimum 4, and maximum is 6 or 8, depending on the platform.
- **Benefits:** Optimizes for both fault tolerance and performance, allowing for automatic redundancy. May be simultaneously used with other RAID levels in an array, and allows for spare disks.
- **Drawbacks:** Requires twice the available disk space for data redundancy, the same as RAID level 1.
- **Fault Tolerance:** Yes.

4.5 AMD DUAL Graphics Technology

AMD Dual Graphics Technology Introduction

When user adds a PCIE display adapter, it can be integrated with IGD to show better performance. To make the two video devices work simultaneously and normally, please refer to the following setting.

AMD Dual Graphics Requirement

- Operating System: Windows 7 / Windows 8
- Supported Dual Graphics Combinations:

Richland APUs			
AMD Radeon™ Graphics Card	A10-Series HD 8670D	A8-Series HD8570D	A6-Series HD 8470D
“Oland” XT, HD 8870	●	●	●**(Note2)**
“Oland” Pro, HD 8850	●	●	●
“Turks” XT, HD 6670	●	●	●
“Turks” Pro, HD 6570	●	●	●
“Caicos” Pro, HD 6450	●	●	●
Trinity APUs			
AMD Radeon™ Graphics Card	A10-Series HD 7660D	A8-Series HD7560D	A6-Series HD 7540D
“Turks” XT, HD 6670	●	●	--
“Turks” Pro, HD 6570	●	●	●
“Caicos” Pro, HD 6450	--	--	●

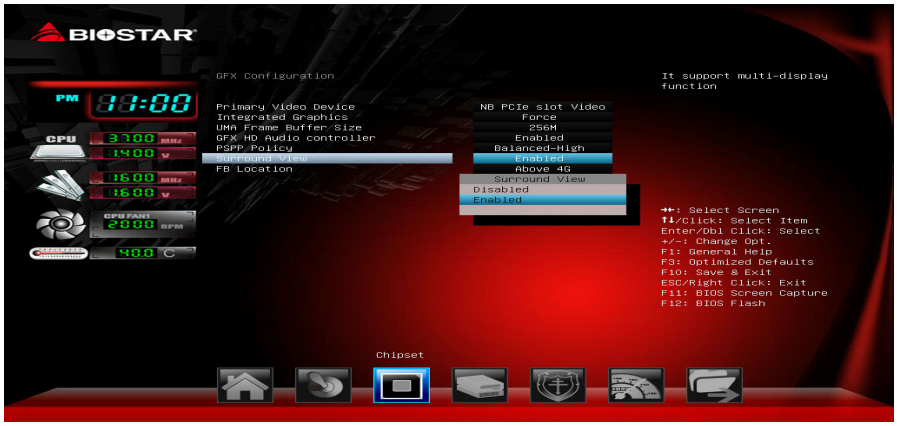
● Recommended graphics cards for AMD dual-graphics

Note 1: A4-Series CPUs do not support Dual Graphics.
Note 2: Only available for DDR3 graphics memory
Note 3: The information described above in this manual is for your reference only and the actual information and settings on board may be different from this manual. For further AMD Dual Graphics information, please visit the following website: http://www.amd.com

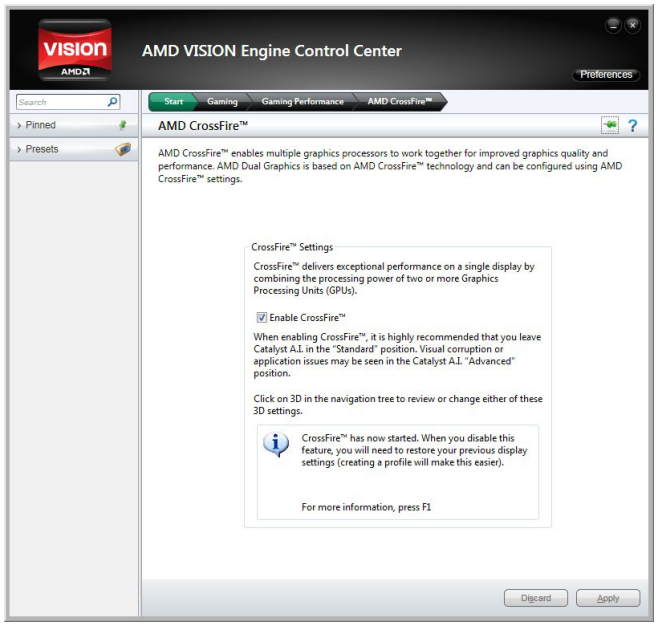
AMD Dual Graphics Setup

Step 1: Insert Dual Graphics-Ready graphics card into PEX16_1 slot.

Step 2: Set the BIOS setting as follows:
[Chipset]→[North Bridge]→[GFX Configuration]
→[Surround View]→[Enabled]



Step 3: Install Driver DVD Chipset Driver, and reboot the system. Activate AMD VISION Engine Control Center to make sure CrossFire has been enabled.


AMD VISION Engine Control Center
Preferences
Start
Gaming
Gaming Performance
AMD CrossFire™
Pinned
Presets
AMD CrossFire™
AMD CrossFire™ enables multiple graphics processors to work together for improved graphics quality and performance. AMD Dual Graphics is based on AMD CrossFire™ technology and can be configured using AMD CrossFire™ settings.
CrossFire™ Settings
CrossFire™ delivers exceptional performance on a single display by combining the processing power of two or more Graphics Processing Units (GPUs).
Enable CrossFire™
When enabling CrossFire™, it is highly recommended that you leave Catalyst A.I. in the "Standard" position. Visual corruption or application issues may be seen in the Catalyst A.I. "Advanced" position.
Click on 3D in the navigation tree to review or change either of these 3D settings.
CrossFire™ has now started. When you disable this feature, you will need to restore your previous display settings (creating a profile will make this easier).
For more information, press F1
Discard
Apply

APPENDIX: Specifications In Other Languages

Arabic

	المواصفات
قاعدة وحدة المعالجة المركزية	*المأخذ FM2/FM2+ لمعالج ايه إم دى AMD تسلسل A* ***الحد الأقصى للطاقة الحرارية في تصميم المعالج (thermal design power – TDP): 100 واط.*** ** يرجى الرجوع إلى الموقعwww.biostar.com.tw لقائمة دعم المعالج CPU.*
مجموعة الشرائح	*A75MD+: AMD A75 FCH* *A78MD: AMD A78 FCH*
الذاكرة	تدعم قناة مزدوجة دي. دي. ار. 3DDR 800 / 1066 / 1333 / 1600 / 1866/ 2133 /(OC)2400 2600(OC) x2 دي. دي. ار. 3DDR فتحات الذاكرة المزدوجة DIMM، تتحمل كحد أقصى 32 جيجابايت ذاكرة كل فتحة مزدوجة DIMM تتحمل دون ECC 512 ميجا بايت /16/8/4/2/1 جيجابايت دي. دي. ار 3DDR * يرجى الرجوع إلى الموقعwww.biostar.com.tw لقائمة دعم الذاكرة.
التخزين	وصلة x4 ساتا 6 SATA جيجا بايت / الثانية تتحمل رايد 0 RAID / 1 / 10 / AHCI
شبكة محلية LAN	ريبالتيك رت ل REALTEK RTL 8111G 10 / 100 / 1000 ميجابايت / الثانية ، تحديد تلقائي ، النصف / القدرة القصوى المزدوجة
الترميز الصوتي	ALC662 5.1 قنوات عالية الدقة
ناقل متسلسل عام USB	منافذ x 6 ناقل متسلسل عام USB 2.0 (2 في المداخل والمخارج الخلفية و 4 من خلال الموزع الداخلي) منافذ x 4 ناقل متسلسل عام USB 3.0 (2 في المداخل والمخارج الخلفية و 2 من خلال الموزع الداخلي)
فتحات التوسع	x1 فتحة منفذ الملحقات الإضافية PCIe x1 1 x فتحة منفذ الملحقات الإضافية PCIe 3.0 x16
المداخل والمخارج الخلفية	1 x PS/2 الفارة 1 x PS/2 لوحة المفاتيح للكمبيوت فتحة توصيل عدد 1 x منظومة العرض المرئي VGA فتحة توصيل عدد 1 x واجهة مرئية رقميةDVI فتحة لتوصيل عدد 1 x الشبكة المحلية LAN فتحة توصيل عدد 2 x ناقل متسلسل عام USB 2.0 فتحة توصيل عدد 2 x ناقل متسلسل عام USB 3.0 فتحة توصيل عدد 3 x جاك للصوت

المواصفات	
المداخل والمخارج الداخلية	وصلة 4 x SATA 6 جيجابايت / الثانية موزع x2 ناقل متسلسل عام USB 2.0 (كل موزع يتحمل فتحتين ناقل متسلسل عام USB 2.0) موزع x1 ناقل متسلسل عام USB 3.0 (كل موزع يتحمل فتحتين ناقل متسلسل عام USB 3.0) موصلة للطاقة 1 x 4 دبابيس وصلة للطاقة x1 24 دبوس وصلة 1 x مروحة تبريد وحدة المعالجة المركزية وصلة x1 مراوح تبريد المنظومة موزع 1 x اللوحة الأمامية موزع x1 الصوت الأمامي موزع x1 سيموس مباشر موزع x1 فتحة تسلسلية
عامل الشكل	عامل شكل مدد التكنولوجيا المتقدمة microATX ، 226 مم x 174 مم
أنظمة التشغيل المدعومة	ويندوز إكس بي windows xp / ويندوز 7 / ويندوز 8.1/8 بيوستار BIOSTAR تحتفظ بحق إضافة أو أزلة الدعم لأي نظام تشغيل مع أو بدون أنظار.

French

Spécifications	
Support Unité Centrale	Interface de connexion FM2+/FM2 pour série A AMD Enveloppe thermique Unité Centrale maximum : 100Watt * Veuillez vous reporter à www.biostar.com.tw pour la liste des supports modèles d'Unité Centrale.
Jeu de puces	A75MD+: AMD A75 FCH A78MD: AMD A78 FCH
Mémoire	Supporte mémoire DDR3 double canal 800/ 1066/ 1333/ 1600/ 1866/ 2133/ 2400(OC)/ 2600(OC) Banc de mémoire 2 x DDR3 DIMM, Supporte max. jusqu'à une mémoire de 32 GB Chaque module DIMM supporte module DDR3 non-ECC 512MB/ 1/ 2/ 4/ 8/ 16 GB * Veuillez vous reporter à www.biostar.com.tw pour la liste des soutien de la mémoire.
Stockage	Connecteur 4 x SATA 6Gb/s Supporte système RAID 0,1,10 & AHCI
Réseau local	Realtek RTL 8111G 10/ 100/ 1000 Mb/s auto négociation, capacité bidirectionnelle à l'alternat / bidirectionnelle simultanée
Codec audio	ALC662 Canaux 5.1, écoute audio de haute définition
USB	Port 6x USB 2.0 (2 sur les I/O arrières et 4 en interne) Port 4x USB 3.0 (2 sur les I/O arrières et 2 en interne)
Connecteur d'extension	1x PCIe x1 Fente 1x PCIe 3.0 x16 Fente
I/O arrirèes	1x PS/2 Clavier 1x PS/2 Souris 1x Port VGA 1x Port DVI 1x port LAN 2x Port USB 2.0 2x Port USB 3.0 3x entrées audio

Spécifications	
I/O en interne	4x Connecteur SATA 6.0Gb/s 2x embases USB 2.0 (chaque embase supporte 2 Ports USB 2.0) 1x embases USB 3.0 (chaque embase supporte 2 Ports USB 3.0) 1x 4-Broche de carte 1x 24-Broche de carte 1x Connecteur ventilateur unité centrale 1x Connecteur ventilateur système 1x Fiche panneau avant 1x Fiche audio avant 1x Fiche mémoire CMOS vide 1x Embase port série
Facteur d'encombrement	Facteur d'encombrement microATX, 226 mm x 174 mm
Support SE	Windows XP / 7 / 8 / 8.1 Biostar se réserve le droit d'ajouter ou d'enlever le support pour toute SE avec ou sans préavis.

German

Spezifikationen	
CPU-Unterstützung	Anschluss-FM2+/FM2 für AMD A-Serie Maximale CPU TDP (Thermal Design Power): 100 Watt * Bitte konsultieren Sie www.biostar.com.tw für CPU-Unterstützungsliste
Chipset	A75MD+: AMD A75 FCH A78MD: AMD A78 FCH
Festplattenspeicher	Unterstützt zweikanaliges DDR3 800/ 1066/ 1333/ 1600/ 1866/ 2133/ 2400(OC)/ 2600(OC) 2 x DDR3 DIMM-SpeicherSlot, Max. Uterstützung bis zu 32 GB-Speicher Jedes DIMM unterstützt nicht-ECC 512MB/ 1/ 2/ 4/ 8/ 16 GB DDR3-Module * Bitte konsultieren Sie www.biostar.com.tw für für Speicherunterstützung Liste.
Arbeitsspeicher	4x SATA 6Gb-Verbindung Unterstützt RAID 0,1,10 & AHCI
LAN	Realtek RTL 8111G 10/ 100/ 1000 Mb Auto-Negotiation, Halb- / Voll-Duplex-fähig
Audio-Codec	ALC662 5.1 Kanäle, HD-Audio
USB	6x USB 2.0-Port (2 hintere I/Os und 4 via interne Header) 4x USB 3.0-Port (2 hintere I/Os und 2 via interne Header)
Erweiterungsanschlüsse	1x PCIe x1-Slot 1x PCIe 3.0 x16-Slot
Hintere I/Os	1x PS/2-Maus 1x PS/2-Keyboard 1x VGA-Port 1x DVI-Port 1x LAN-Port 2x USB 2.0-Port 2x USB 3.0-Port 3x Audio Jack

Spezifikationen	
Interne I/Os	4x SATA 6.0Gb/s-Verbinung 2x USB 2.0-Header (jeder Header unterstützt 2 USB 2.0-Ports) 1x USB 3.0-Header (jeder Header unterstützt 2 USB 3.0-Ports) 1x 4-Pin-Stromverbindung 1x 24-Pin-Stromverbindung 1x CPU-Ventilatorverbindung 1x System-Ventilatorverbindung 1x Header für Frontpanel 1x Header für Frontaudio 1x Header für klares CMOS 1x Serieller Port-Header
Formfaktor	microATX Formfaktor, 226 mm x 174 mm
OS-Unterstützung	Windows XP / 7 / 8 / 8.1 Biostar reserves the right to add or remove support for any OS with or without notice.

Italian

Specificazioni	
Supporto processore	Slot FM2+/FM2 per processore AMD serie-A Alimentazione di Proiezione Termico (TDP – Thermal Design Power): 100Watt * Si prega di consultare www.biostar.com.tw per la lista di supporto del processore.
Tipo scheda	A75MD+: AMD A75 FCH A78MD: AMD A78 FCH
Memoria	Supporta DDR3 800/ 1066/ 1333/ 1600/ 1866/ 2133/ 2400(OC)/ 2600(OC) Doppio Canale 2 x DDR3 DIMM Slot di Memoria Supporta fino a 32 GB Memoria Ogni DIMM supporta non-ECC 512MB/ 1/ 2/ 4/ 8/ 16 GB DDR3 moduli * Si prega di consultare www.biostar.com.tw per la lista di supporto del memoria.
Memorizzazione	Connettore 4x SATA 6Gb/s Supporta RAID 0,1,10 & AHCI
Catena	Realtek RTL 8111G 10/ 100/ 1000 Mb auto negoziazione, capacita di duplex Meta / Completo
Codec Audio	ALC662 Canali Audio di Alta Definizione 5.1
USB	Slot 6x USB 2.0 (2 nei ingressi/ uscite posteriore e 4 da distributori interni) Slot 4x USB 3.0 (2 nei ingressi/ uscite posteriore e 2 da distributori interni)
Slot di espansione	Slot 1x PCIe x1 Slot 1x PCIe 3.0 x16
Ingressi/ Uscite Posteriore	Mouse 1x PS/2 Tastiera 1x PS/2 Slot 1x VGA Slot 1x DVI Slot 1x LAN Slot 2x USB 2.0 Slot 2x USB 3.0 Jack audio 3x

Specificazioni	
Ingressi/ Uscite Interni	Connettore 4x SATA 6.0Gb/s Distributore 2x USB 2.0(ogni distributore supporta 2 slot USB 2.0) Distributore 1x USB 3.0(ogni distributore supporta 2 slot USB 3.0) Connettore con 4 pin x1 Connettore con 24 pin x1 Connettore Ventilatore processore x1 Connettore Ventilatore Sistema x1 Distributore Pannello Frontale x1 Distributore Audio Frontale x1 Distributore CMOS Diretto x1 Distributore Slot Serie x1
Fattore di Forma	Fattore di Forma microATX, 226 mm x 174 mm
Supporto SO	Windows XP / 7 / 8 / 8.1 Biostar si riserva il diritto di aggiungere o ritirare il supporto per qualsiasi SO con o senza preavviso.

Japanese

仕様	
CPU サポート	AMD A-シリーズ プロセッサの Socket FM2+/FM2 最大 CPU TDP （Thermal Design Power 最大放熱量）:100 W *CPU サポート リストについては、www.biostar.com.twを参照してください。
チップセット	A75MD+: AMD A75 FCH A78MD: AMD A78 FCH
メモリ	デュアルチャンネル DDR3 800/ 1066/ 1333/ 1600/ 1866/ 2133/ 2400(OC)/ 2600(OC) をサポート 2 x DDR3 DIMM メモリ スロット、 最大 32 GB メモリまでサポート 各 DIMM は、 非-ECC 512MB/ 1/ 2/ 4/ 8/ 16 GB DDR3 モジュールをサポートしています *サポートされているメモリのリストについては、www.biostar.com.twを参照してください。
保存スペース	4x SATA 6Gb/s コネクタ RAID 0,1,10 & AHCI のサポート
LAN	Realtek RTL 8111G 10/ 100/ 1000 Mb/s オートネゴーシエーション、半/全 二重通信
オーディオ コーデック	ALC662 5.1 チャンネル，ハイ デフィニション オーディオ
USB	6x USB 2.0 ポート (後部 I/O に2つ 及び 内蔵ヘッダー経由に4つ) 4x USB 3.0 ポート (後部 I/O に2つ 及び 内蔵ヘッダー経由に2つ)
拡張スロット	1x PCIe x1 スロット 1x PCIe 3.0 x16 スロット
後部 I/O	1x PS/2 キーボード 1x PS/2 マウス 1x VGA ポート 1x DVI ポート 1x LAN ポート 2x USB 2.0 ポート 2x USB 3.0 ポート 3x オーディオ ジャック

仕様	
内蔵 I/O	4x SATA6.0Gb/s コネクタ 2x USB 2.0 ヘッダー (各ヘッダーは、2つの USB 2.0 ポートをサポートしています) 1x USB 3.0 ヘッダー (各ヘッダーは、2つの USB 3.0 ポートをサポートしています) 1x 4-Pin パワー コネクタ 1x 24-Pin パワー コネクタ 1x CPU ファン コネクタ 1x システム ファン コネクタ 1x フロント パネル ヘッダー 1x フロント オーディオ ヘッダー 1x クリア CMOS ヘッダー 1x シリアル ポート ヘッダー
フォーム ファクタ	microATX フォーム ファクタ、226 mm x 174 mm
サポート OS	Windows XP / 7 / 8 / 8.1 Biostar には、通知なしでサポート OS を変更する権限があります。

Polish

Specyfikacje techniczne	
Obsługa procesora	Gniazdo procesora (Socket) FM2+/FM2 dla procesorów AMD seria-A Moc Wydzielanego Ciepła (TDP - Thermal Design Power): 100Watt * Proszę sprawdzić listę obsługiwanych procesorów na stronie internetowej www.biostar.com.tw
Rodzaj płyty	A75MD+: AMD A75 FCH A78MD: AMD A78 FCH
Pamięć	Obsługa pamięci DDR3 800/ 1066/ 1333/ 1600/ 1866/ 2133/ 2400(OC)/ 2600(OC) Dwukanałowa 2 x DDR3 DIMM Pamięć Gniazda procesora (Slot), Maksymalna wielkość pamięci 32 GB Każdy DIMM obsługuje jeden moduł non-ECC 512MB/ 1/ 2/ 4/ 8/ 16 GB DDR3 * Proszę sprawdzić listę obsługiwanych pamięć na stronie internetowej www.biostar.com.tw
Przechowywanie	Złącze 4x SATA 6Gb/s Obsługa RAID 0,1,10 & AHCI
LAN	Układ RTL 8111G 10/ 100/ 1000 Mb auto negocjacja, pojemność dupleks Połowe / Pełny
Codec Audio	ALC662 Kanały Audio wysokiej Definicji 5.1
USB	6 x złącza USB 2.0 (2 przez tylne porty wejścia/ wyjścia oraz 4 przez wewnętrzne porty) 4 x złącza USB 3.0 (2 przez tylne porty wejścia/ wyjścia oraz 2 przez wewnętrzne porty)
Złącza rozszerzeń	złącza 1x PCIe x1 (Slot) złącza 1x PCIe 3.0 x16 (Slot)
Tylne porty wejścia/ wyjścia	Myszka 1x PS/2 Klawiatura 1x PS/2 Port 1x VGA Port 1x DVI Port 1x LAN Porty 2x USB 2.0 Porty 2x USB 3.0 Porty audio 3x

Specyfikacje techniczne	
Wewnętrzne porty wejścia/ wyjścia	Złącza 4x SATA 6.0Gb/s Złącza 2x USB 2.0 (każde złącze obsługuje dodatkowe 2 porty USB 2.0) Złącza 1x USB 3.0 (każde złącze obsługuje dodatkowe 2 porty USB 3.0) Złącza 4 pionowe x 1 Złącza 24 pionowe x 1 Złącze wentylatora CPU x 1 Złącze wentylatora obudowy x 1 Złącze przedniego panelu x1 Złącze audio przedniego panelu x1 Złącze bezpośrednie CMOS x1 Port szeregowy x1
Obudowa	Obudowa microATX, 226 mm x 174 mm
Obsługa OS	Windows XP / 7 / 8 / 8.1 Biostar zastrzega sobie prawo do dodania lub wycofania obsługi dla OS, z wypowiedzeniem lub bez wypowiedzenia.

Portuguese

Especificações	
Suporte Processador	Porta FM2+/FM2 para processador AMD série-A Alimentação de Design Térmico (TDP – Thermal Design Power): 100Watt * Por favor consulte www.biostar.com.tw para obter uma lista de suporte do processador.
Tipo Placa Mãe	A75MD+: AMD A75 FCH A78MD: AMD A78 FCH
Memória	Suporta DDR3 800/ 1066/ 1333/ 1600/ 1866/ 2133/ 2400(OC)/ 2600(OC) Canal Duplo 2 x DDR3 DIMM Slot de memória Suporta até 32 GB Memória Cada DIMM suporta non-ECC 512MB/ 1/ 2/ 4/ 8/ 16 GB DDR3 módulo * Por favor consulte www.biostar.com.tw para obter uma lista de suporte do memória.
Armazenamento	Conector 4x SATA 6Gb/s Suporta RAID 0,1,10 & AHCI
LAN	Realtek RTL 8111G 10/ 100/ 1000 Mb auto negociação, capacidade duplex Metade / Cheio
Codec de Audio	ALC662 Canais de Áudio de Alta Definição 5.1
USB	Porta 6x USB 2.0 (2 nas entradas/saídas traseiras e 4 pelos Dispositivos internos) Porta 4x USB 3.0 (2 nas entradas/saídas traseiras e2 pelos Dispositivos internos)
Slots de expansão	Porta 1x PCIe x1 Porta 1x PCIe 3.0 x16
Entradas/Saídas no painel traseiro	Mouse 1x PS/2 Teclado 1x PS/2 Porta 1x VGA Porta 1x DVI Porta 1x LAN Porta 2x USB 2.0 Porta 2x USB 3.0 Soquete audio 3x

Especificações	
Conectores na placa	Conector 4x SATA 6.0Gb/s Dispositivo 2x USB 2.0 (cada Dispositivo suporta 2 portas USB 2.0) Dispositivo 1x USB 3.0 (cada Dispositivo suporta 2 portas USB 3.0) Conector de 4 pinos x1 Conector de 24 pinos x1 Conector de Ventoinha processador x1 Conector de Ventoinha Sistema x1 Dispositivo Painel Frontal x1 Dispositivo de Audio Frontal x1 Dispositivo CMOS Direct x1 Dispositivo Porta Série x1
Fator de Fôrma	Fator de Fôrma microATX, 226 mm x 174 mm
Suporte OS	Windows XP / 7 / 8 / 8.1 Biostar reserva seu direito de adicionar ou retirar o suporte para qualquer OS com ou sem notificação.

Russian

Спецификации	
Поддержка центрального процессора	Сокет FM2+/FM2 для процессоров AMD серии A Максимальный термопакет центрального процессора (TDP): 100 ватт * Перечень поддержки центрального процессора смотрите на www.biostar.com.tw.
Набор микросхем	A75MD+: AMD A75 FCH A78MD: AMD A78 FCH
Память	Поддерживает двухканальный DDR3 800/ 1066/ 1333/ 1600/ 1866/ 2133/ 2400(OC)/ 2600(OC) 2 гнезда платы памяти DDR3 DIMM, максимальная память до 32 Гб Каждый модуль DIMM поддерживает модуль не-ECC 512 Мб/ 1/ 2/ 4/ 8/ 16 Гб DDR3 * Перечень поддержки памяти смотрите на www.biostar.com.tw.
Накопитель	Соединитель 4x SATA 6 Гб/с Поддерживает RAID 0,1,10 & AHCI
Локальная сеть	Realtek RTL 8111G Автосогласование 10/ 100/ 1000 Мб/с, работает в полно/полудуплексном режиме
Аудиокодек	ALC662 Каналы 5.1, высококачественное аудио
USB	6 портов USB 2.0 (2 сзади ввода-вывода и 4 через внутренние контакты) 4 портов USB 3.0 (2 сзади ввода-вывода и 2 через внутренние контакты)
Гнезда расшир.	1x гнезда PCIe x1 1x PCIe 3.0 x16 гнездо
Задняя плата ввода-вывода	1 мышь PS/2 1 клавиатура PS/2 1 порт VGA 1 порт DVI 1 порт локальной сети 2 порта USB 2.0 2 порта USB 3.0 3 гнезд для подключения наушников

Спецификации	
Внутр. Плата ввода-вывода	Соединитель 4x SATA 6 Гб/с 2 контакта USB 2.0 (каждый контакт поддерживает 2 порта USB 2.0) 1 контакта USB 3.0 (каждый контакт поддерживает 2 порта USB 3.0) 1 4-выводный разъем питания 1 24-выводный разъем питания 1 разъем вентилятора ЦП 1 разъема вентилятора системы 1 контакт передней панели 1 контакт передней аудиопанели 1 контакт микросхемы Clear CMOS 1 контакт последовательного порта
Конструктив	Форм-фактор microATX, 226 мм x 174 мм
Поддержка ОС	Windows XP / 7 / 8 / 8.1 Biostar оставляет за собой право добавлять или удалять поддержку любой ОС, с уведомлением или без.

Spanish

Especificaciones	
Compatibilidad con el procesador	Ranura FM2+/FM2 para procesador AMD serie - A Alimentación de Proyección Térmica (TDP – Thermal Design Power): 100Watt *Por favor consultar con www.biostar.com.tw para la lista de compatibilidad con el procesador.
Tipo de Placa	A75MD+: AMD A75 FCH A78MD: AMD A78 FCH
Memoria	Soporta DDR3 800/ 1066/ 1333/ 1600/ 1866/ 2133/ 2400(OC)/ 2600(OC) Doble Canal 2x DDR3 DIMM Ranura de memoria Soporta hasta 32 GB Memoria Cada DIMM soporta un modulo non-ECC 512MB/ 1/ 2/ 4/ 8/ 16 GB DDR3 *Por favor consultar con www.biostar.com.tw para la lista de compatibilidad con el memoria.
Almacenamiento de información	Conector 4x SATA 6Gb/s Soporta RAID 0,1,10 & AHCI
LAN	Realtek RTL 8111G 10/ 100/ 1000 Mb/s auto negociación, capacidad dúplex Mitad/Completo
Códec Audio	ALC662 Canales Audio de Alta Definición 5.1
USB	Ranura 6x USB 2.0 (2 en las entradas/salidas posteriores y 4 por los distribuidores internos) Ranura 4x USB 3.0 (2 en las entradas/salidas posteriores y 2 por los distribuidores internos)
Ranuras de Extinción	Ranura 1x PCIe x1 Ranura 1x PCIe 3.0 x16
Panel trasero de E/S	Ratón 1x PS/2 Teclado 1x PS/2 Ranura 1x VGA Ranura 1x DVI Ranura 1x LAN Ranura 2x USB 2.0 Ranura 2x USB 3.0 Socket audio 3x

Especificaciones	
Conectores en placa	Conector 4x SATA 6Gb's Distribuidor 2x USB 2.0 (cada distribuidor soporta 2 ranuras USB 2.0) Distribuidor 1x USB 3.0 (cada distribuidor soporta 2 ranuras USB 3.0) Conector con 4 patillas x1 Conector con 24 patillas x1 Conector Ventilador procesador x1 Conector Ventilador Sistema x1 Distribuidor Panel Frontal x1 Distribuidor Audio Frontal x1 Distribuidor CMOS Directo x1 Distribuidor Ranura Serie x1
Factor de Forma	Factor de Forma microATX, 226 mm x 174 mm
Soporte OS	Windows XP / 7 / 8 / 8.1 Biostar reserva su derecho de añadir o retirar el soporte para cada OS con o sin notificación.

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